Health Advisory:

Consumption of Locally-Produced, Raw (Unpasteurized) Dairy Products Contaminated With Shiga-Toxin Producing Organisms (STEC)

January 11, 2013

This document will be updated as new information becomes available. The current version can always be viewed at http://www.health.mo.gov

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Health Advisory
January 11, 2013

FROM: GAIL VASTERLING
ACTING DIRECTOR

SUBJECT: **Consumption of Locally-Produced, Raw (Unpasteurized) Dairy Products Contaminated With Shiga-Toxin Producing Organisms (STEC)**

The Missouri Department of Health and Senior Services (DHSS) has become aware of several cases of diarrheal illness from northwest Missouri, possibly caused by Shiga-toxin producing *Escherichia coli* (STEC), including one confirmed as *E. coli* O103. These may be related to the consumption of locally-produced, raw (unpasteurized) dairy products.

DHSS recommends that any person who has signs or symptoms of STEC infection seek medical care. Health care providers should evaluate patients adequately to determine if testing for STEC infection is warranted.

Symptoms of STEC infection include severe stomach cramps, diarrhea (which is often bloody), and vomiting. If there is fever, it usually is not very high. Most patients' symptoms improve within 5–7 days, but some patients go on to develop hemolytic uremic syndrome (HUS), usually about a week after the diarrhea starts. The classic triad of findings in HUS are acute renal damage, microangiopathic hemolytic anemia, and thrombocytopenia.

Use of antibiotics in patients with suspected STEC infections is not recommended until complete diagnostic testing can be performed and STEC infection is ruled out. Some studies have shown that administering antibiotics in patients with STEC infections might increase their risk of developing HUS. However, clinical decision making must be tailored to each individual patient. There may be indications for antibiotics in patients with severe intestinal inflammation if perforation is of concern.

Guidelines to optimize detection and characterization of STEC infections include the following:

- All stools submitted for testing from patients with acute community-acquired diarrhea should be cultured for STEC O157:H7. These stools should be simultaneously assayed for non-O157 STEC with a test that detects the Shiga toxins or the genes encoding these toxins.
- Clinical laboratories should report and send *E. coli* O157:H7 isolates and Shiga toxin-positive samples to the Missouri State Public Health Laboratory (MSPHL) as soon as possible for additional characterization.
- Specimens or enrichment broths in which Shiga toxin or STEC are detected, but from which O157:H7 STEC isolates are not recovered, should be forwarded as soon as possible to MSPHL so that non-O157:H7 STEC can be isolated.

- It is often difficult to isolate STEC in stool by the time a patient presents with HUS. Immunomagnetic separation (IMS) has been shown to increase recovery of STEC from HUS patients. For any patient with HUS without a culture-confirmed STEC infection, stool can be sent to the Centers for Disease Control and Prevention (CDC) through MSPHL. In addition, serum can be sent to CDC through MSPHL for serologic testing of common STEC serogroups.

The benefits of adhering to the recommended testing strategy include early diagnosis, improved patient outcome, and detection of all STEC serotypes.

Medical providers are required to report, within one day, suspected or diagnosed cases of the following: Shiga toxin-producing *E. coli* (STEC), other Shiga toxin-positive organisms that have not been characterized, and all cases of post-diarrheal HUS. Reports can be made to the local public health agency, or to DHSS at 800/392-0272 (24/7). In addition, laboratories are required to submit isolates or specimens positive for *E. coli* O157:H7, or for other Shiga toxin-positive organisms, to MSPHL for epidemiological or confirmation purposes.

Laboratory consultation is available from MSPHL by calling 573/751-3334, or 800/392-0272 (24/7). Other questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113, or 800/392-0272 (24/7).

Health Advisory:

2012-2013 Seasonal Influenza Activity in Missouri

January 16, 2013

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Health Advisory
January 16, 2013

FROM: GAIL VASTERLING
ACTING DIRECTOR

SUBJECT: 2012-2013 Seasonal Influenza Activity in Missouri

The Missouri Department of Health and Senior Services (DHSS) has upgraded influenza activity in Missouri to "**widespread**" as of the first week of January 2013. **Recent surveillance data suggests a possible shift in influenza activity in Missouri from predominantly influenza B to increasing influenza A activity.**

Nationally, for the week ending January 5, 2013, of laboratory-confirmed influenza cases, approximately 80% were due to Influenza A and 20% to Influenza B. In Missouri, from week 40 (week ending October 5, 2012) through week 52 (week ending December 29, 2012), of influenza-positive specimens at the Missouri State Public Health Laboratory (MSPHL), 92.1% were due to Influenza B and 15.7% to Influenza A. However, within the past two weeks that pattern has changed, and during this period, 78.6% of influenza-positive specimens at MSPHL were due to Influenza A and 21.4% due to Influenza B.

So far this year, the relative disease burden from influenza in Missouri has been smaller than that seen in many other states. This could be partly explained by the overwhelming predominance of influenza B in the state. **If influenza A activity in Missouri continues to increase, more demand for health care services would be expected since influenza A tends to cause more severe illness than influenza B.**

According to Missouri's sentinel influenza surveillance network, the proportion of patient visits to physician offices for influenza-like illness (ILI)* has increased over a one-week period from 5.60% to 5.73% for the week ending January 12, 2013, which is above Missouri's influenza season baseline of 1.66%. At the same time, syndromic surveillance (ESSENCE) data indicate the proportion of patients with ILI chief complaints in emergency departments (EDs) has shown a one-week increase from 3.3% to 3.57%. This remains below Missouri's influenza season threshold of 4.1%.

The percentage of patients hospitalized (following ED visits) for influenza and/or pneumonia syndromes has generally been increasing statewide over the last four weeks, although during the most recent week, decreases were seen in some age groups. The most affected group comprises people ≥65 years and there is a steady increase in hospitalizations in the 0-4 year age group. While DHSS cannot predict the future number of influenza cases reported or the future percentage of ED visits for ILI, historically an increase in ED visits for ILI correlates with an increase in reported influenza cases within 2-3 weeks.

Missouri has no reported influenza-associated pediatric deaths in the current season. Two school closures due to influenza were reported last week compared to a total of five since the start of the current flu season.

The single best way to protect against influenza is to get vaccinated each year. It is still not too late to receive the vaccine.

Guidance:

- Vaccination is recommended for as long as influenza viruses are circulating. It takes about two weeks after vaccination for antibodies to develop in the body that provide protection against influenza. Findings from early data suggest that this season's vaccine so far is reducing the risk of having to go to the doctor for influenza by about 60% for vaccinated people. The data are published in "Early Estimates of Seasonal Influenza Vaccine Effectiveness - United States, January 2013," in the January 11, 2013, *Morbidity and Mortality Weekly Report* (*MMWR*).

- Currently there is no shortage of influenza vaccine in Missouri.

- According to the Centers for Disease Control and Prevention (CDC), the majority of currently circulating influenza viruses in the U.S. are susceptible to the neuraminidase inhibitor antiviral medications oseltamivir and zanamivir. Antiviral treatment with oseltamivir or zanamivir is recommended as early as possible for patients with confirmed or suspected influenza who have severe, complicated, or progressive illness; who require hospitalization; or who are at greater risk for serious influenza-related complications. Additional information is available at http://www.cdc.gov/flu/antivirals/index.htm.

For additional information on Missouri influenza data, go to:
http://health.mo.gov//living/healthcondiseases/communicable/influenza/reports.php

Links to comprehensive information and guidance for medical professionals on seasonal influenza are available on DHSS' Web site at:
http://health.mo.gov/emergencies/ert/med/seasonal.php

Additional questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113, or 800/392-0272 (24/7)

*ILI is defined as a fever (temperature ≥ 100°F [37.8°C] oral or equivalent) and cough and/or a sore throat in the absence of a KNOWN cause other than influenza.

Health Advisory:

Avian Influenza A (H7N9)

May 10, 2013

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Health Advisory
May 10, 2013

FROM: GAIL VASTERLING
ACTING DIRECTOR

SUBJECT: Avian Influenza A (H7N9)

Avian Influenza A (H7N9) virus is one of a subgroup of influenza viruses that normally circulate among birds. Until recently, this virus had not been seen in people. However, human infections have now been detected, and the resulting disease is of concern because most of the cases have been severely ill. Although no cases of avian influenza A (H7N9) have been identified in the United States, clinicians should consider the diagnosis of avian influenza A (H7N9) virus infection in persons with acute respiratory illness compatible with influenza and relevant exposure history. If a patient meets the criteria described below, the Missouri Department of Health and Senior Services (DHSS) should be immediately contacted regarding specimen collection and facilitation of confirmatory testing. Specific treatment and infection control guidelines (see below) have been issued which should be instituted whenever a case is first suspected.

As of May 6, 2013, health officials in China report total of 130 human cases of avian influenza A (H7N9), 31 of them (24%) fatal. Recent analysis of H7N9 human cases revealed that the median age of patients with confirmed infection is 61 years, and most are male (71%). Among the 71 cases for which complete data are available, 54 (76%) had at least one underlying health condition. Most of the confirmed cases involved severe respiratory illness. Of 82 confirmed cases for which data were available as of April 17, 81 (99%) required hospitalization. Among those patients hospitalized, 17 (21%) died of acute respiratory distress syndrome (ARDS) or multiorgan failure, 60 (74%) remained hospitalized, and only four (5%) had been discharged. However, although the majority of H7N9 cases have resulted in severe respiratory illness in adults, infection with this virus may cause mild illness in some, and may cause illness in children as well.

Cases have been confirmed in eight contiguous provinces in eastern China, two municipalities (Beijing and Shanghai), and Taiwan. **No cases of avian influenza A (H7N9) have been identified to date in the United States.**

The source of the human infections remains under investigation. H7N9 has been detected in Chinese poultry. While the investigation is ongoing, the current working assumption is that most people have been infected with the virus after having contact with infected poultry or contaminated environments. A New England Journal of Medicine (NEJM) article authored by Chinese public health officials released on April 24, 2013 reports that 77% of the first 82 H7N9 patients had some animal exposure.

Almost all confirmed cases have been sporadic, with no epidemiologic link to other human cases. However, at least three family clusters of two or three confirmed cases have been reported where limited human-to-human transmission might have occurred. Epidemiologic investigations have yielded no conclusive evidence of sustained human-to-human transmission. According to the CDC, H7N9 virus in its current form cannot start a pandemic, but it could if the virus mutates to gain the ability to spread readily from person to person. At this time, it is impossible to predict what next steps the H7N9 virus may take.

Testing

CDC has developed an rRT-PCR Emergency Use Authorization (EUA) test for public health laboratories to specifically detect the avian influenza A (H7N9) virus (see fact sheet links below). This test is only for use on patients with the following clinical and epidemiologic criteria:

A patient with illness compatible with influenza meeting either of the following exposure criteria and for whom laboratory confirmation is not known or pending, or for whom test results do not provide a sufficient level of detail to confirm novel influenza A virus infection.

- A patient who has had recent travel (within ≤ 10 days of illness onset) to a country where human cases of novel influenza A (H7N9) virus have recently been detected or where novel influenza A (H7N9) viruses are known to be circulating in animals.

  OR

- A patient who has had recent contact (within ≤ 10 days of illness onset) with a confirmed or probable case of infection with novel influenza A (H7N9) virus.

A confirmatory test for influenza A(H7N9) would still be performed at CDC at this time.

These testing eligibility criteria are strictly enforced in order to preserve limited available testing resources and to support only those appropriate investigations that facilitate successful public health interventions and surveillance.

Medical providers caring for a patient who meets these criteria should immediately contact DHSS at 800-392-0272 (24/7) to discuss sending specimens for testing at the Missouri State Public Health Laboratory (MSPHL). Note that before any specimen is sent to MSPHL, DHSS staff must first be consulted. After consultation and determination that the patient meets the criteria for testing, contact the MSPHL at 573-751-3334 or 800-392-0272 for guidance on specimen collection and shipping prior to collecting the specimens. This will help ensure that proper specimens are obtained in the right quantity, and that they are packed and transported properly.

Treatment

Because of the potential severity of illness associated with avian influenza A (H7N9) virus infection, the Centers for Disease Control and Prevention (CDC) recommends that all H7N9 patients (confirmed, probable, or under investigation for H7N9 infection) receive antiviral treatment with oseltamivir or zanamivir as early as possible. Treatment should be initiated even >48 hours after onset of illness. Treatment should not be delayed for laboratory confirmation of influenza or H7N9 infection. Note that amantadine and rimantadine are not recommended for treatment of H7N9 virus infection. **Current guidance on treatment is available from CDC at:** http://www.cdc.gov/flu/avianflu/h7n9-antiviral-treatment.htm. Be aware that this guidance may change over time as more experience is gained in treating H7N9 infections.

Infection Control

Guidance on initial infection control in healthcare settings for confirmed, probable, or cases under investigation for avian influenza A (H7N9) is available from CDC at: http://www.cdc.gov/flu/avianflu/h7n9-infection-control.htm. **These infection control measures should be instituted immediately whenever a case is first suspected. Note that this guidance recommends a higher level of infection control measures than for seasonal influenza.** Among important differences from the seasonal influenza guidance are recommendations for contact and airborne precautions for patients with confirmed, probable, or a cases under investigation of H7N9 virus infection, which includes a higher level of personal protective equipment for healthcare personnel, including eye protection (i.e., required) and the expanded use of respirators (i.e., for all patient-care activities). Also note that this interim guidance adds to existing infection control precautions (i.e., Standard Precautions) used every day in healthcare settings during the care of any patient. As with the treatment guidelines, guidance on infection control may be updated as more information on influenza A (H7N9) becomes available.

Vaccination

Past serologic studies evaluating immune response to H7 subtypes of influenza viruses have shown no existing cross-reactive antibodies in human sera. In the United States, planning for H7N9 vaccine clinical trials is under way. Although no decision has been made to initiate an H7N9 vaccination program in this country, CDC recommends that local authorities and preparedness programs take time to review and update their pandemic influenza vaccine preparedness plans because it could take several months to ready a vaccination program, if one becomes necessary.

Information on where influenza A (H7N9) cases are occurring is available from WHO at: http://www.who.int/influenza/human_animal_interface/influenza_h7n9/Data_Reports/en/index.html.

Influenza A (H7N9) information and recommendations for travelers is available from CDC at: http://wwwnc.cdc.gov/travel/notices/watch/avian-flu-h7n9.htm. This material will be updated as necessary.

Fact Sheet for Healthcare Providers: Interpreting CDC Human Influenza Virus Real-Time RT-PCR Diagnostic Panel Influenza A/H7 (Eurasian Lineage) Assay Test Results at: http://www.fda.gov/downloads/MedicalDevices/Safety/EmergencySituations/UCM349062.pdf

Fact Sheet for Patients: Understanding Results from the CDC Human Influenza Virus Real-Time RT-PCR Diagnostic Panel A/H7 (Eurasian Lineage) Assay at: http://www.fda.gov/downloads/MedicalDevices/Safety/EmergencySituations/UCM349064.pdf

For links to additional information, see DHSS' Avian Influenza website at: http://health.mo.gov/emergencies/panflu/avian.php.

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113, or 800/392-0272 (24/7).

Health Advisory:

Updated Guidelines for Evaluation of Severe Respiratory Illness Associated with MERS-CoV

June 10, 2013

This document will be updated as new information becomes available. The current version can always be viewed at http://www.health.mo.gov

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Health Advisory
June 10, 2013

FROM: GAIL VASTERLING
ACTING DIRECTOR

SUBJECT: **Updated Guidelines for Evaluation of Severe Respiratory Illness Associated with MERS-CoV**

On March 8, 2013, the Centers for Disease Control and Prevention (CDC) issued, and the Missouri Department of Health and Senior Services (DHSS) forwarded, a CDC Health Advisory entitled "Notice to Health Care Providers: Updated Guidelines for Evaluation of Severe Respiratory Illness Associated with a Novel Coronavirus." On June 7, 2013, CDC provided updated epidemiological information on, and evaluation guidelines for, what is now called Middle East Respiratory Syndrome Coronavirus (MERS-CoV). This Health Advisory contains the new information and guidelines from CDC. If a patient meets the criteria described below, DHSS should immediately be contacted regarding specimen submission and facilitation of testing.

CDC HEALTH UPDATE

Distributed via the CDC Health Alert Network
June 7, 2013
CDCHAN-00348

Notice to Health Care Providers: Updated Guidelines for Evaluation of Severe Respiratory Illness Associated with Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Summary: *The Centers for Disease Control and Prevention (CDC) is working closely with the World Health Organization (WHO) and other partners to better understand the public health risk posed by Middle East Respiratory Syndrome Coronavirus (MERS-CoV), a novel coronavirus that was first reported to cause human infection in September 2012. No cases have been reported in the United States. The purpose of this HAN Advisory is to provide updated guidance to state health departments and health care providers in the evaluation of patients for MERS-CoV infection including expansion of availability of laboratory testing and, in consultation with WHO, expansion of the travel history criteria for patients under investigation* from *within 10 to 14 days for investigation and modification of the case definition. Please disseminate this information to infectious diseases specialists, intensive care physicians, internists, infection preventionists, as well as to emergency departments and microbiology laboratories.*

Background

MERS-CoV, formerly called "novel coronavirus," is a beta coronavirus that was first described in September 2012, when it was reported to have caused fatal acute lower respiratory illness in a man in Saudi Arabia. Genetic sequence analyses have shown that this new virus is different from other known human coronaviruses, including the one that caused severe acute respiratory syndrome (SARS). Diagnosis relies on testing with real time reverse transcription polymerase chain reaction (RT-PCR) assays. There is no specific treatment for MERS-CoV infection; care is supportive.

As of June 7, 2013, 55 laboratory-confirmed cases of MERS-CoV infection have been reported to WHO—two from France, three from Italy, two from Jordan, two from Qatar, 40 from Saudi Arabia, two from Tunisia, one from the United Arab Emirates, and three from the United Kingdom (UK). Additional details can be found in the June 7, 2013 *MMWR* Early Release (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm62e0607a1.htm?s_cid=mm62e0607a1_w)

To date, all cases have a direct or indirect link to one of four countries: Saudi Arabia, Qatar, Jordan, and the United Arab Emirates. **No cases have been reported in the United States.** Illness onsets were from April 2012 through May 2013. Of the 55 cases, 31 were fatal, for a case-fatality rate of 56%. The median age of cases is 56 years. All of the patients were aged ≥24 years, except for two children, one aged 2 years and one aged 14 years.

Eight clusters of illnesses have been reported by six countries (France, Italy, Jordan, Saudi Arabia, Tunisia, and UK). These clusters provide clear evidence of human-to-human transmission of MERS-CoV. The largest cluster reported to date consists of 25 cases, 14 of which were fatal, associated with a health-care facility in Al-Ahsa governorate in Saudi Arabia. Two of the case-patients in that cluster were health-care personnel who acquired the infection after exposure to patients with confirmed MERS-CoV infection.

The first case reported by France was in a person with an underlying immunosuppressive condition who initially had abdominal pain and diarrhea and subsequently developed respiratory complications. This case raises the possibility that presentations may not initially include respiratory symptoms. Among cases reported to WHO in which more detailed information is available, most are reported to have chronic underlying medical conditions or immunosuppression; such persons may be at increased risk of MERS-CoV infection or severe disease, or both. In some instances, sampling with nasopharyngeal swabs did not detect MERS-CoV by PCR; however, MERS-CoV was detected by PCR in lower respiratory tract specimens from those same patients. Therefore, lower tract respiratory specimens should be a priority for collection and PCR testing, in addition to nasopharyngeal swabs.

Recommendations

Recommendations and guidance on MERS-CoV case definitions, case investigation, specimen collection and shipment for testing, and infection control (including use of personal protective equipment) are available at the CDC MERS website (http://www.cdc.gov/coronavirus/MERS/index.html). Information and guidance posted on this website may change as we learn more about the virus. Please check CDC's MERS website regularly for the most current information. **[Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113, or 800/392-0272 (24/7).]**

Surveillance

As a result of investigations suggesting incubation periods for MERS CoV may be longer than 10 days, the time period for considering MERS in persons who develop severe acute lower respiratory illness days after traveling from the Arabian Peninsula or neighboring countries* has been extended from within 10 days to within 14 days of travel.

In particular, persons who meet the following criteria for "patient under investigation" (PUI) should be reported to state and local health departments and evaluated for MERS-CoV infection:

- A person with an acute respiratory infection, which may include fever (≥ 38°C , 100.4°F) and cough; AND
- Suspicion of pulmonary parenchymal disease (e.g., pneumonia or acute respiratory distress syndrome based on clinical or radiological evidence of consolidation); AND
- History of travel from the Arabian Peninsula or neighboring countries* within 14 days; AND
- Symptoms not already explained by any other infection or etiology, including clinically indicated tests for community-acquired pneumonia† according to local management guidelines.

In addition, the following persons may be considered for evaluation for MERS-CoV infection:

- Persons who develop severe acute lower respiratory illness of known etiology within 14 days after traveling from the Arabian Peninsula or neighboring countries* but who do not respond to appropriate therapy; OR

- Persons who develop severe acute lower respiratory illness who are close contacts‡ of a symptomatic traveler who developed fever and acute respiratory illness within 14 days of traveling from the Arabian Peninsula or neighboring countries.*

In addition, CDC recommends that clusters of severe acute respiratory illness (SARI) should be investigated and, if no obvious etiology is identified, local public health officials should be notified and testing for MERS-CoV conducted if indicated.

CDC requests that state and local health departments report PUIs for MERS-CoV and clusters of SARI with no identified etiology to CDC. To collect data on PUIs, please use CDC's Interim Health Departments MERS-CoV Investigation Form available at http://www.cdc.gov/coronavirus/mers/guidance.html.

Laboratory Testing

Testing of specimens for MERS-CoV is currently being conducted at CDC. The Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) on June 5, 2013, to authorize the use of the CDC Novel Coronavirus 2012 Real-time RT-PCR Assay (NCV-2-12 rRT-PCR Assay) to test for MERS-CoV in clinical respiratory, blood and stool samples. This EUA is needed because, at this time, no FDA-approved tests that identify MERS-CoV in clinical specimens are available. This assay will be deployed to Laboratory Response Network (LRN) laboratories in all 50 states over the coming weeks. Updated information about laboratories with the capacity to conduct MERS testing with the NCV-2-12 rRT-PCR Assay will be provided on CDC's MERS website (http://www.cdc.gov/coronavirus/mers/case-def.html).

To increase the likelihood of detecting MERS-CoV, CDC recommends collection of specimens from different sites-- for example, a nasopharyngeal swab and a lower respiratory tract specimen such as sputum, bronchoalveolar lavage, bronchial wash, or tracheal aspirate. Specimens should be collected at different times after symptom onset, if possible. Lower respiratory tract specimens should be a priority for collection and PCR testing; stool specimens are of lower priority. Specimens should be collected with appropriate infection control precautions http://www.cdc.gov/coronavirus/mers/case-def.html.

Medical providers caring for a patient who meets the above criteria for a "patient under investigation" (PUI) should immediately contact DHSS at 800/392-0272 (24/7) to discuss sending specimens for testing. Note that before any specimen is sent for testing, DHSS staff must first be consulted. After consultation and determination that the patient meets the criteria for testing, contact the Missouri State Public Health Laboratory (MSPHL) at 573/751-3334 or 800/392-0272 for guidance on specimen collection and shipping prior to collecting the specimens. This will help ensure that proper specimens are obtained in the right quantity, and that they are packed and transported properly.

Case Definitions

The MERS-CoV case definition continues to evolve and is available at http://www.cdc.gov/coronavirus/mers/case-def.html. In consultation with WHO, the definition of a probable case of MERS has been updated to also include persons with severe acute respiratory infection with no known etiology with an epidemiologic link to a confirmed MERS-CoV case.

Infection Control

There is clear evidence of limited human-to-human transmission, possibly involving different modes, such as droplet and contact transmission, but further studies are required to better understand the risks. Until the transmission characteristics of MERS-CoV are better understood, patients under investigation and probable and confirmed cases should be managed in healthcare facilities using standard, contact, and airborne precautions. As information becomes available, these recommendations will be re-evaluated and updated as needed.

*Countries considered to be on or neighboring the Arabian Peninsula include Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates (UAE), and Yemen.

† Examples of respiratory pathogens causing community-acquired pneumonia include influenza A and B, respiratory syncytial virus, adenovirus, *Streptococcus pneumoniae*, and *Legionella pneumophila*.

‡ Close contact is defined as 1) any person who provided care for the patient, including a health-care worker or family member, or who had other similarly close physical contact, or 2) any person who stayed at the same place (e.g., lived with or visited) as the patient while the patient was ill.

For more information:
For additional information, please consult the CDC MERS website at:
http://www.cdc.gov/coronavirus/mers/index.html

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113, or 800/392-0272 (24/7).

Health Advisory:

How To Handle Situations Involving Suspicious Powdery Substances (Updated 2013)

July 25, 2013

This document will be updated as new information becomes available. The current version can always be viewed at http://health.mo.gov/emergencies/ert/alertsadvisories/index.php.

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Health Advisory
July 25, 2013

FROM: GAIL VASTERLING
ACTING DIRECTOR

SUBJECT: How To Handle Situations Involving Suspicious Powdery Substances (Updated 2013)

Incidents involving the discovery of a suspicious powdery substance, often in or on a letter or package, continue to occur. Such a discovery often results in concern that the material may contain anthrax spores, ricin, or some other hazardous biological, chemical, or radioactive substance. In almost all instances, the powdery material does not contain any harmful substance and poses no risk to those who have contact with it. However, on very rare occasions, the material has been found to be hazardous. Consequently, whenever a suspicious powdery substance is encountered, reasonable steps need to be taken immediately to minimize exposure and facilitate evaluation of the incident by law enforcement officials, as proper assessment, examination, and handling is critical to minimize any threat to public health from any explosive component or materials, poison chemicals or gases, disease organisms, or ionizing radiation. If law enforcement officials believe the incident represents a true potential threat and that testing of the substance is indicated, they should contact the Missouri Department of Health and Senior Services (DHSS) for consultation, referral as may be needed, and testing services. If necessary, DHSS and local public health agency personnel can also provide assistance to help ensure that all potentially exposed persons are identified and managed appropriately.

Following the anthrax attacks in 2001, protocols were developed for situations where a suspicious powdery substance suspected to contain anthrax spores is discovered. The basic approach described in these documents is valid not only for potential exposures to anthrax spores, but also for exposures to ricin and other hazardous biological, chemical, or radioactive materials that could be disseminated via powdery substances. This Health Advisory replaces the March 30, 2009, Health Advisory entitled "How To Handle Situations Involving Suspicious Powdery Substances (Updated)," and provides an updated protocol for handling incidents involving such substances.

Questions regarding this protocol, or potential bioterrorist-associated diseases such as anthrax or ricin poisoning, should be directed to the department's Bureau of Communicable Disease Control and Prevention at 573/751-6113, 866/628-9891, or 800/392-0272 (24/7).

Questions regarding chemical or radiological issues should be directed to the department's Bureau of Environmental Epidemiology at 573/751-6102, or 800/392-0272 (24/7).

Questions regarding laboratory testing issues should be directed to the Missouri State Public Health Laboratory (MSPHL) at 573/751-3334, 573/522-1444, or 800/392-0272 (24/7).

IF A SUSPICIOUS POWDERY SUBSTANCE IS ENCOUNTERED, DO NOT PANIC – KEEP THE ACTUAL RISK OF THE SITUATION IN PERSPECTIVE

1. It is important to remember that in almost all instances in which a letter or package has been found to contain a suspicious powder, no hazardous substance has been identified. (**Note: the term "hazardous substance," when used in this document, refers to any biological, chemical, or radioactive substance which could cause disease in those exposed to it.**) At the same time, it is wise to handle each situation of this type in a careful, reasonable manner, as described below.
2. Incidents involving a specific threat and/or the discovery of a suspicious powdery substance will be carefully investigated by law enforcement personnel and, if necessary, by public health officials. One of the first steps to take in such a situation is to immediately contact the local law enforcement agency.
3. If, in the unlikely event that anthrax spores are found to be present, and it is believed that specific persons may have inhaled these spores, these persons will be offered preventive (prophylactic) treatment with antibiotic medication to significantly decrease their chances of becoming ill. It is noteworthy that following the 2001 anthrax attacks, over 10,000 individuals who may have been exposed to the spores were placed on prophylactic antibiotics, and no cases of anthrax occurred among these persons. (For more information on anthrax, see http://health.mo.gov/emergencies/ert/med/anthrax.php.)
4. In the similarly unlikely event that ricin is discovered, exposed individuals will be identified and followed for the development of signs of illness (no specific preventive treatment exists). If such signs appear, these persons can then quickly be provided appropriate supportive medical care. (For more information on ricin, see http://health.mo.gov/emergencies/ert/med/ricin.php.)
5. It is also important to remember that persons with inhalational anthrax (the most dangerous form of the disease), or with ricin poisoning, do not transmit the disease to other persons. Person-to-person transmission of cutaneous anthrax has been reported, but is very rare and can be prevented.

Suspicious Letter or Package

What kind of mail should be considered suspicious?

Some characteristics of suspicious packages and envelopes include the following:

- Inappropriate or unusual labeling
  - Excessive postage
  - Handwritten or poorly typed addresses
  - Misspellings of common words
  - Strange return address or no return address
  - Incorrect titles or title without a name
  - Not addressed to a specific person
  - Marked with restrictions, such as "Personal," "Confidential," or "Do not x-ray"
  - Marked with any threatening language
  - Postmarked from a city or state that does not match the return address
- Appearance
  - Powdery substance felt through or appearing on the package or envelope
  - Oily stains, discolorations, or odor
  - Lopsided or uneven envelope
  - Excessive packaging material such as masking tape, string, etc.
- Other suspicious signs
  - Excessive weight
  - Ticking sound
  - Protruding wires or aluminum foil

If a package or envelope appears suspicious, **DO NOT TOUCH OR OPEN IT**.

What should people do if they get a letter or package containing, or contaminated with, a suspicious powdery substance?

See the flow chart beginning on the next page. **Note that if the suspicious powdery substance is found to be in or on some other item besides a letter or package (e.g., a surface where mail is opened), the same general procedures should be followed.**

Actions to Be Taken Following Identification of a Letter or Package Which Could Potentially Contain or Be Contaminated With a Hazardous Substance

Initial Actions if at Home

1. Do not shake or empty the contents of any suspicious package or envelope.
2. Do not carry the package or envelope, show it to others, or allow others to examine it.
3. Put the package or envelope down on a stable surface; do not sniff, touch, taste, or look closely at it or at any contents that may have spilled.
4. Alert others in the area about the suspicious package or envelope. Leave the area, leaving interior doors open, and take actions to prevent others from entering the area. If possible, shut off the ventilation system.
5. Wash hands (and other potentially exposed skin areas) with soap and water to prevent spreading potentially infectious, toxic, or radioactive material to additional areas of the skin. Seek further instructions for exposed or potentially exposed persons.
6. Contact the local law enforcement agency.
7. Create lists of persons who were in the room or area when the suspicious letter or package was recognized, and lists of persons who also may have handled the letter or package. Give these lists to law enforcement officials and, if they become involved, to local or state public health authorities.

Initial Actions if at Work

1. Do not shake or empty the contents of any suspicious package or envelope.
2. Do not carry the package or envelope, show it to others, or allow others to examine it.
3. Put the package or envelope down on a stable surface; do not sniff, touch, taste, or look closely at it or at any contents that may have spilled.
4. Alert others in the area about the suspicious package or envelope. Leave the area, leaving interior doors open, and take actions to prevent others from entering the area. If possible, shut off the ventilation system.
5. Wash hands (and other potentially exposed skin areas) with soap and water to prevent spreading potentially infectious, toxic, or radioactive material to additional areas of the skin. Seek further instructions for exposed or potentially exposed persons.
6. Notify a supervisor, security officer, or local law enforcement official. (Ensure local law enforcement officials are contacted.)
7. If possible, create lists of persons who were in the room or area when the suspicious letter or package was recognized, and lists of persons who also may have handled the letter or package. Give these lists to law enforcement officials and, if they become involved, to local or state public health authorities.

Local Law Enforcement Agency

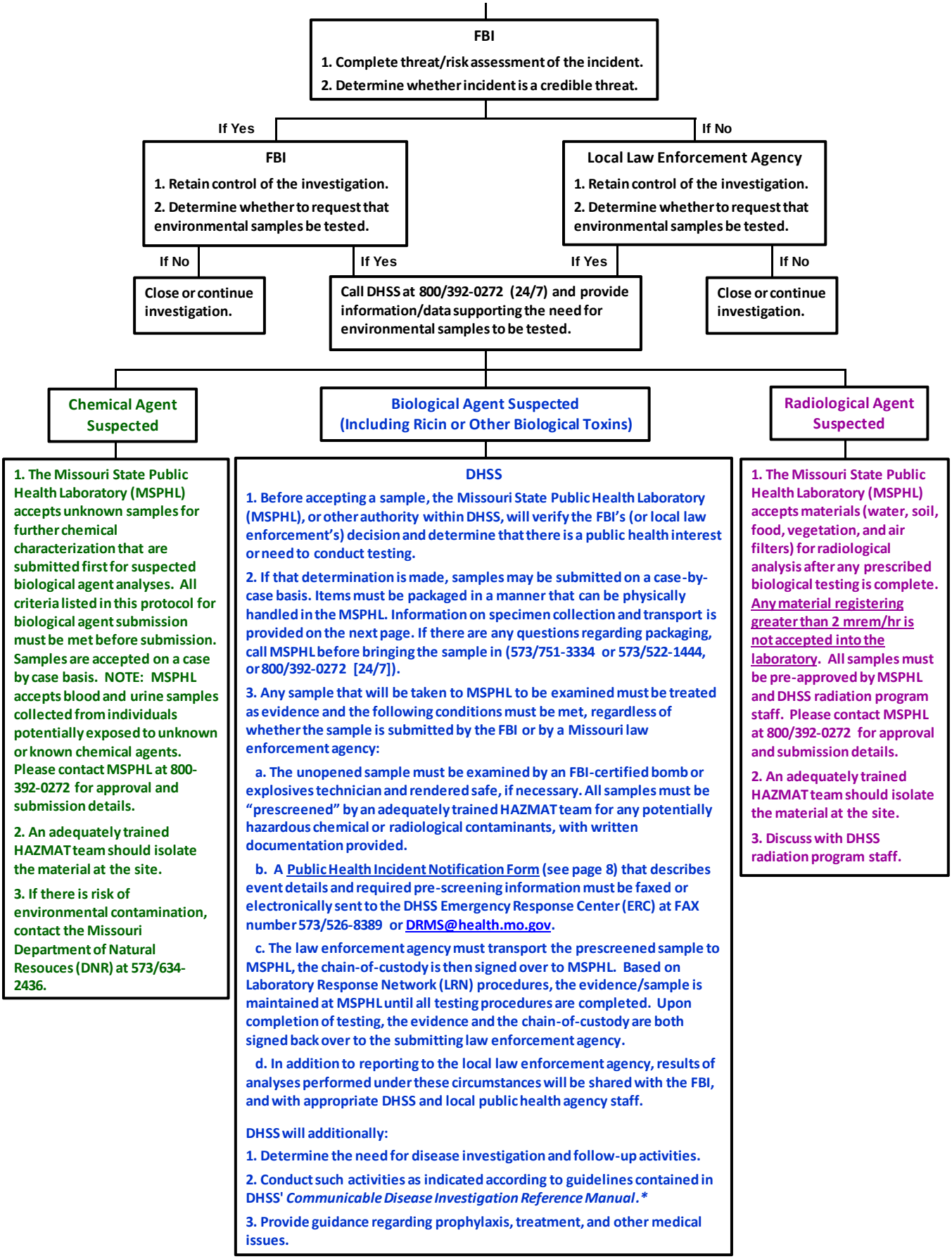
1. Begin investigation and determine the nature of the threat.
2. The FBI must be notified before any specimen is delivered to a public health laboratory.
3. Determine whether the item might contain or be contaminated with a hazardous substance.

If Yes

1. Secure the area.
2. Contact appropriately trained HAZMAT team per standard procedures established for your local area.
3. Notify the regional office of the FBI and ask for the regional Weapons of Mass Destruction (WMD) Coordinator or designee. Phone numbers are:
   a. Eastern MO – St. Louis Regional Office – 314/231-4324
   b. Western MO – Kansas City Regional Office – 816/512-8200 (Joplin)
   c. Central MO – Jefferson City Area Office – 573/636-8814 (St. Joseph, Springfield)
4. Notify the local public health agency (see local number), or the Missouri Department of Health and Senior Services (DHSS) at 800/392-0272 (24/7).
5. Start a list of names and telephone numbers for all persons who may have handled the letter or package, or otherwise been exposed to the suspicious material.
6. Notify persons who have handled the item to place all contaminated clothing worn when in contact with the item into plastic bags to be made available to local law enforcement, if needed. Instruct these persons to shower as soon as possible.

If No

Close or continue investigation.



*DHSS' *Communicable Disease Investigation Reference Manual* is available at: http://www.health.mo.gov/living/healthcondiseases/communicable/communicabledisease/cdmanual/index.php.

Environmental Specimens for Biological Analysis: Collection and Transport

(Includes Any Sample NOT From Clinical Sources)

Missouri Department of Health and Senior Services (800) 392-0272 (24 hours a day – 7 days a week)

State Public Health Laboratory (573) 751-3334 or (573) 522-1444

For further information, see the Missouri State Public Health Laboratory website:
http://health.mo.gov/lab/index.php

Remember that these samples may be highly infectious or toxic! Extreme caution should be taken in collecting, preparing for shipment, and transporting any material suspected of being contaminated with a biological or toxic agent.

NOTE: Environmental samples will only be accepted from a law enforcement agency, and the FBI must be, or have been, involved. Each sample can be no larger then 12 inches by 36 inches (including packaging). For larger samples, consult the Missouri State Public Health Laboratory (MSPHL) before submitting.

Samples may include paper, water, dry non-cotton swab samples from air vents or other surfaces, powders, soil, or other environmental samples. Only liquid samples need to be kept cold. All other samples can be transported at room temperature.

Environmental specimens received by MSPHL must be accompanied by paper documentation which includes the following:

1. Agency name and telephone number, and a contact person, for the submitting law enforcement organization along with chain of custody papers.
2. A **Public Health Incident Notification Form** (see page 8) that describes event details, and that the sample has been "prescreened" by an FBI-certified bomb or explosives technician and an adequately trained HAZMAT team, must be faxed or electronically sent to the DHSS Emergency Response Center (ERC) at FAX # 573-526-8389 or DRMS@health.mo.gov.

The sample being submitted should only be the suspect material. Additional items from the area that are suspected of being exposed should be bagged and held until testing is complete. For example, if a suspicious package/letter is received in a post office, only the suspicious package/letter should be brought to MSPHL for testing. All accompanying pieces of mail and the mail bag or letter tray should be bagged in plastic until testing of the suspicious package/letter is completed. Arrangements for where and how that material will be held are the responsibility of the investigating officials.

The specimen must be transported in a container that MSPHL personnel are able to open within a safety cabinet. This would include plastic bags or other devices that can be easily opened. This does not include sealed plastic buckets, etc.

MSPHL is unable to accommodate investigation-derived waste. If the HAZMAT team has collected the specimen, they should package their waste in a separate container from the specimen. Disposal of investigation-derived waste is the responsibility of the HAZMAT team.

Reporting Times:

All reporting times are the minimum time. Any individual specimen could take longer.

Anthrax

For environmental specimens, negatives could be reported in 24 hours if there is no suspicious growth. However, any suspicious growth would need to be investigated and could delay the reporting of negative results.

A specimen could be reported "presumptive positive" in 4-6 hours after receipt of the specimen, with complete identification and positive confirmation at 5 days.

Ricin

Presumptive results, either positive or negative, could be available in 3-4 hours after receipt of the specimen.

General Guidance for Managing Persons Who Have Had Exposure to an Unknown Powdery Substance

1. Persons exposed to a suspicious powdery substance should wash their hands with soap and water to prevent spreading potentially infectious, toxic, or radioactive material to other areas of the skin. If other areas of the skin (e.g., face, arms) have been exposed, they should be similarly washed.

   a) If the initial evaluation of the incident finds evidence of significant risk of exposure to a hazardous substance (e.g., anthrax spores, ricin), exposed persons should, as soon as practical, remove contaminated clothing and store in labeled plastic bags (handling the clothing as little as possible to avoid agitation), and shower thoroughly with soap and water. A more detailed description of this process is described in the box below. Although this description was taken from a CDC ricin document, it provides, in general, a reasonable series of steps to take regardless of the nature of the suspicious material.

   - Removing your clothing:
     - Quickly but carefully (to avoid agitation) take off clothing that may have the potentially hazardous material on it. Any clothing that has to be pulled over the head should be cut off the body instead of pulled over the head.
     - If you are helping other people remove their clothing, try to avoid touching any contaminated areas, and remove the clothing as quickly as possible while taking care to avoid agitation.
   - Washing yourself:
     - As soon as possible, wash any potentially hazardous material from your skin with large amounts of soap and water.
     - If your eyes are burning or your vision is blurred, rinse your eyes with plain water for 10 to 15 minutes. If you wear contacts, remove them and put them with the contaminated clothing. Do not put the contacts back in your eyes (even if they are not disposable contacts). If you wear eyeglasses, wash them with soap and water. You can put your eyeglasses back on after you wash them.
   - Disposing of your clothes:
     - After you have washed yourself, carefully place your clothing inside a plastic bag. Avoid touching contaminated areas of the clothing. If you can't avoid touching contaminated areas, or you aren't sure where the contaminated areas are, wear rubber gloves, turn the bag inside out and use it to pick up the clothing, or put the clothing in the bag using tongs, tool handles, sticks, or similar objects. Anything that touches the contaminated clothing should also be placed in the bag. If you wear contacts, put them in the plastic bag, too.
     - Seal the bag, and then seal that bag inside another plastic bag. When finished, wash your hands with soap and water. Disposing of your clothing in this way will help protect you and other people from any potentially hazardous material that might be on your clothes.
     - When the local or state health department or emergency personnel arrive, tell them what you did with your clothes. The health department or emergency personnel will arrange for further disposal. Do not handle the plastic bags yourself.

   b) If the initial evaluation of the incident does <u>not</u> find evidence of significant risk of exposure to a hazardous substance, then individuals may, when they go home, shower with soap and water, and wash their clothing in the normal manner using laundry detergent.

2. Asymptomatic persons exposed to an unknown powdery substance should <u>not</u> be started on prophylactic medications unless there is specific evidence that the substance contains a particular agent (e.g., anthrax) for which prophylactic drugs would be recommended. If law enforcement personnel evaluate the incident and believe it to represent a credible threat, the substance can be tested and, if the results are positive, any necessary prophylaxis can quickly be instituted. Beginning a prophylactic drug regimen prior to receiving positive laboratory results should only be considered if there is specific evidence that a particular agent, for which prophylaxis is indicated, is likely to have been present in the powdery material.

3. If evaluation of the incident by law enforcement personnel indicates the absence of a credible risk, and no environmental testing is done, prophylactic medications would <u>not</u> be indicated.

4. If an exposed person begins to demonstrate signs/symptoms of illness, he/she should promptly contact a medical provider, and should be sure to mention the powder exposure to the provider. If the individual is going to a

medical facility (such as an emergency room), the facility should be contacted in advance if there is any possibility the person may currently have contamination on his/her skin or clothing. Also, one resource that may be helpful in some situations is the Missouri Poison Center at 314/772-5200 (in St. Louis) or 800/222-1222 (outside St. Louis).

When a medical provider is evaluating an individual who has been (or potentially been) in contact with a suspicious powdery substance, the following should be considered:

a. If the signs/symptoms are consistent with those seen in early-stage inhalational anthrax (e.g., fever, cough, headache, nausea/vomiting, fatigue, muscle aches, sweating, chest discomfort), and no environmental laboratory results are available, then a decision must quickly be made as to whether to begin treatment for anthrax. This decision must take into account the signs/symptoms, their onset in relation to the time of exposure, and the probability (as best can be determined) that the substance might contain anthrax spores. Clinicians caring for such patients should consult with infectious disease specialists, and with public health officials. If it is concluded that the initiation of treatment is indicated, then the recommended regimen for treating anthrax disease (which differs from the prophylaxis regimen) should be used, and treatment should begin immediately (a delay in initiating proper antibiotic treatment in patients with early-stage inhalational anthrax will substantially lessen the chances for survival). If, as a result of laboratory testing, it is subsequently found that the individual was not exposed to anthrax spores, and does not have anthrax, then the treatment regimen can be discontinued or modified as necessary.

b. Signs/symptoms seen in early ricin poisoning by inhalation (difficulty breathing, fever, cough, nausea, chest tightness) can be generally similar to those seen in early inhalational anthrax. In a patient with ricin poisoning, proper supportive medical care should be provided (no specific prophylaxis or treatment for ricin is available). This can include appropriate respiratory support (oxygen, intubation, ventilation, PEEP, and hemodynamic monitoring) and treatment for pulmonary edema, as necessary.

c. If signs/symptoms suggest other etiologies, then the patient should be managed as clinically appropriate, taking into consideration other potential terrorist agents that might have been present in the powdery material, as well as other causes for the patient's disease that are unrelated to the powder exposure or a potential terrorist act. Consultation should be obtained from relevant clinical specialists, as well as from public health officials.

5. If the suspicious powdery substance is found to contain anthrax spores, all individuals potentially exposed to aerosolized spores should be offered prophylactic antibiotics as quickly as possible. Public health officials will be involved in investigating the extent of the exposures, and will provide recommendations as to which specific persons should be offered prophylaxis. All persons receiving prophylaxis should be provided education on anthrax disease and its signs/symptoms. They should be told to contact a medical provider immediately if they develop signs/symptoms consistent with early anthrax disease. Persons with exposure to anthrax spores who develop such signs/symptoms should immediately be started on an anthrax treatment regimen. Prophylaxis and treatment recommendations are found in:

   - CDC. Use of anthrax vaccine in the United States. *MMWR* 2010; 59(RR-6). http://www.cdc.gov/mmwr/pdf/rr/rr5906.pdf
   - Stern EJ, et al. Conference report on public health and clinical guidelines for anthrax. *Emerg Infect Dis* 2008, April. http://wwwnc.cdc.gov/eid/article/14/4/07-0969_article.htm
   - Inglesby TV, et al. Anthrax as a biological weapon, 2002. *JAMA* 2002;287: 2236-2252 http://jama.jamanetwork.com/article.aspx?articleid=194886

   Additional prophylaxis and treatment recommendations may be made once the antibiotic sensitivities of the anthrax organisms have been determined.

6. If the substance is found to contain ricin, all exposed persons should be provided education on ricin poisoning and its signs/symptoms. They should be told to contact a medical provider immediately if they develop signs/symptoms consistent with such poisoning.

7. No screening tests are available for the detection of either anthrax infection or ricin exposure in an asymptomatic person. Nasal swab cultures should not be used to diagnose cases of anthrax or to evaluate whether a person has been exposed. Nasal swab cultures may, in some instances, be utilized by public health researchers conducting an investigation of an anthrax attack.

8. More information for medical and public health professionals on anthrax, ricin, and other biological, chemical, and radiological terrorist threats is available on the department's Emergency Response and Terrorism – Diseases & Disasters website at http://health.mo.gov/emergencies/ert/diseasesdisasters.php. Information for the general public is also available on this site.

Public Health Incident Notification Form
Notify: Missouri Department of Health & Senior Services
Emergency Response Center (ERC)
Fax: 573/526-8389 Phone: 800/392-0272

Date:	**Phone:**
Contact Person:	
From:	**Agency:**
Submission to State Public Health Laboratory: (yes or no)	
Item(s) being submitted:	**Number of samples:**
Common name of substance/material (if known):	
Form of Material: ☐ Powder ☐ Solid Color_____ ☐ Liquid ☐ Other_____ Triple Bagged (yes or no)	
Screening measures: (P = Positive, N = Negative, NC = Not Conducted) ☐ ☐ ☐ Chemical corrosivity (P N NC) ☐ ☐ ☐ Volatile Organics (P N NC) ☐ ☐ ☐ Radiological (P N NC) ☐ ☐ ☐ Other_____ (P N NC) ☐ ☐ ☐ Bomb tech screened (if unopened) (P N NA) Name of Chemical or Radiological isotope (if Positive) _____	
Name(s) of screening agency:	
Date and time found:	
Place found:	
City:	**County:**
Threat assessment: (circle one) 1. Low threat – no exposure 2. Low threat – exposure 3. Moderate/High threat – no exposure 4. Moderate/High threat - exposure	
Number of people directly exposed to threat:	
Specific threat information:	
Decon Measures: ☐ Yes ☐ No ☐ Health intervention underway/recommended/Initiated?	
Health Protective Measures: ☐ Isolation ☐ Evacuation ☐ Quarantine ☐ Shelter in Place ☐ Prophylaxis ☐ Not needed ☐ N/A ☐ Other:_____	
Local Public Health Agency notified: ☐ Yes (please list) _____ ☐ No	
Specific request/Special instructions from FBI	

24-Hour Emergency Numbers

Missouri Information Analysis Center (MIAC)	**866/362-6422**
Missouri State Emergency Management Agency (SEMA)	**573/751-2748**
Missouri Department of Natural Resources (DNR) Spill Line	**573/634-2436**
Missouri State Highway Patrol (MSHP)	**800/525-5555**
Missouri Poison Center	**314/772-5200 (in St. Louis)** **800/222-1222 (outside St. Louis)**
Missouri Department of Health and Senior Services	**800/392-0272**

Health Advisory:

Recognition and Reporting of Disease Outbreaks or Unusual Illnesses

October 25, 2013

This document will be updated as new information becomes available. The current version can always be viewed at http://www.health.mo.gov

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

Health Alerts convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

Health Advisories provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

Health Guidances contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

Health Updates provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

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Web site: http://www.health.mo.gov

Health Advisory
October 25, 2013

FROM: **GAIL VASTERLING**
ACTING DIRECTOR

SUBJECT: **Recognition and Reporting of Disease Outbreaks or Unusual Illnesses**

From October 25th through October 29th, very large numbers of persons will be coming to the St. Louis area for a number of sporting events including the World Series. This Health Advisory is intended to remind medical providers and facilities of the need to be alert for any indications of disease outbreaks or unusual diseases or manifestations of illness, and if identified, to report immediately all known or suspected cases to public health authorities. It also will contain information on resources that can assist providers and facilities in this effort, and in the diagnosis and medical management of individuals who may be affected.

Medical providers and facilities are required to report known or suspected cases of certain diseases and conditions to their local public health agency (LPHA), or to the Missouri Department of Health and Senior Services (DHSS). A list of these diseases and conditions, and the time frames for reporting, are found at: http://health.mo.gov/living/healthcondiseases/communicable/communicabledisease/pdf/reportablediseaselist2.pdf. Note particularly the requirement for the immediate reporting to public health officials of single cases or outbreaks of unusual diseases or manifestations of illness, including those which might be the result of a terrorist or other intentional act involving biological, chemical, radiological, or physical agents. Reports to DHSS can be made by calling 573/751-6113, or 800/392-0272 (24/7).

LPHAs and DHSS' Bureau of Communicable Disease Control and Prevention (BCDCP) can provide epidemiology and surveillance assistance in situations involving outbreaks, or individual cases, of unusual illnesses (as well as outbreaks of commonly occurring diseases). Public health laboratory services are available through the Missouri State Public Health Laboratory (MSPHL). Public health officials can also provide guidance for managing outbreaks or cases of unusual disease. BCDCP can be contacted at 573/751-6113, and MSPHL can be contacted at 573-751-3334. Both can also be reached at 800/392-0272 (24/7).

One concern in a major event involving large numbers of casualties is that available medical resources may become quickly depleted. The Strategic National Stockpile (SNS) contains substantial quantities of medications and medical equipment that can be made available to medical providers and facilities if local supplies are exhausted. In addition, Show-Me Response (Missouri's Emergency System for Advanced Registration for Volunteer Health Professionals) is a system which allows preregistration of medical and non-medical professionals who can be available to serve as volunteers in the event of a major disaster or public health emergency (see http://health.mo.gov/emergencies/ert/volunteer.php).

High-impact terrorist attacks can occur in the United States. Medical providers play a crucial role in the treatment of victims of these attacks, and in some instances in the initial recognition that an attack has occurred (e.g., by identifying the initial anthrax cases in 2001).

Resources are available which provide clinical information and guidance for those who care for persons impacted by terrorist events. Links to these resources are available from the following DHSS websites:

a. Biological agents: http://health.mo.gov/emergencies/ert/biomed.php.

   As mentioned above, DHSS' communicable disease bureau (BCDCP) can be contacted at 573/751-6113

b. Chemical agents: http://health.mo.gov/emergencies/ert/chemmed.php

   For emergency clinical consultation regarding the management of chemical agent victims, contact the Missouri Poison Center at 314-772-5200 (in St. Louis) or 800-222-1222 (outside St. Louis).

c. Radiological agents: http://health.mo.gov/emergencies/ert/nucmed.php

   DHSS recently released a Health Guidance document entitled "Management in a Hospital Setting of Persons Contaminated With Radioactive Material and Exposed to Radiation Following a Dirty Bomb Explosion – 2013." It is available at: http://health.mo.gov/emergencies/ert/alertsadvisories/pdf/hg10213.pdf

   Expert medical consultation on the management of victims of radiation events is available 24/7 from the Radiation Emergency Assistance Center/Training Site (REAC/TS), a radiation emergency medical response asset of the U.S. Department of Energy/National Nuclear Security Administration. Their emergency number is 865/576-1005. Other questions on radiological issues can be directed to DHSS' Bureau of Environmental Epidemiology at 573/751-6102.

The Centers for Disease Control and Prevention (CDC) has provided links to guidance for responding to bombings and other mass casualty events. It is found at http://emergency.cdc.gov/HAN/han00346.asp.

Finally, it is important to emphasize that while attention is currently being given to the events in St. Louis this coming weekend, medical providers and facilities should always be alert to evidence of disease outbreaks or unusual illnesses, and immediately report all known or suspected cases to public health officials. Providers and facilities should also remain aware of the assistance and resources that public health agencies can provide.

Health Advisory:

Pandemic pH1N1 Virus-Associated Illnesses and the Influenza Season in Missouri

December 26, 2013

This document will be updated as new information becomes available. The current version can always be viewed at http://www.health.mo.gov

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

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Health Advisory
December 26, 2013

FROM: **GAIL VASTERLING**
ACTING DIRECTOR

SUBJECT: **Pandemic pH1N1 Virus-Associated Illnesses and the Influenza Season in Missouri**

As of December 21, 2013, Missouri is experiencing low influenza activity, but recent weeks showed significant acceleration in confirmed influenza cases. There is also a significant increase in the proportion of outpatient visits for influenza-like illness (ILI) in Missouri. Laboratory surveillance data shows that **2009 pandemic influenza A virus (pH1N1) is causing the overwhelming majority of influenza cases in Missouri during this early influenza season.**

Increased pH1N1 virus activity in Missouri is consistent with the Centers for Disease Control and Prevention (CDC) assessment that for the 2013-14 season, pH1N1 has been the predominant circulating virus nationally so far. This season, CDC has received a number of reports of severe respiratory illness among young and middle-aged adults, many of whom were infected with pH1N1 virus. Multiple pH1N1-associated hospitalizations, including many requiring intensive care unit (ICU) admission, and some fatalities, have been reported. The pH1N1 virus that emerged in 2009 caused more illness in children and young adults, compared to older adults, although instances of severe illness were seen in all age groups. **If pH1N1 virus continues to circulate widely during the 2013-2014 influenza season, illness that disproportionately affects young and middle-aged adults may occur.** The spectrum of illness observed so far this season has ranged from mild to severe, and is consistent with that of other influenza seasons. **CDC has not detected any significant changes in pH1N1 viruses that would suggest increased virulence or transmissibility.**

> **Due to the limited sensitivities and predictive values of Rapid Influenza Diagnostic Tests (RIDTs), influenza antiviral treatment is recommended as early as possible for any patient who has indications for such treatment.** Antiviral treatment (oral oseltamivir or inhaled zanamivir) is helpful in reducing morbidity and mortality in those who become ill with influenza. **Decisions about starting antiviral treatment should not wait for laboratory confirmation of influenza.**

The Missouri Department of Health and Senior Services (DHSS) recommends annual influenza vaccination for everyone 6 months and older since it is the best tool for prevention of influenza**. Anyone who has not yet been vaccinated this season should get an influenza vaccine now.**

Background

The risk of severe disease and complications from influenza is higher among children younger than 5 years of age, adults aged 65 years and older, pregnant

women, and those with underlying medical conditions. However, during the 2009 pandemic, pH1N1 caused more illness in children and young adults than in older adults. This was likely due in part to protection in older adults provided by cross-reactive immunity to pH1N1 caused by prior infection with antigenically-related viruses. The pandemic also was notable for severe illness among pregnant women infected with pH1N1, and adverse outcomes in newborn babies.

RIDTs are immunoassays that can identify the presence of influenza A and B viral nucleoprotein antigens in respiratory specimens, and display the result in a qualitative way (positive vs. negative). In the United States, a number of RIDTs are commercially available; see http://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm.

The reference standards for laboratory confirmation of influenza virus infection are reverse transcription-polymerase chain reaction (RT-PCR) or viral culture. RIDTs can yield results in a clinically relevant time frame, i.e., approximately 15 minutes or less. However, RIDTs have limited sensitivity to detect influenza virus infection, and negative test results should be interpreted with caution given the potential for false-negative results. Testing specimens collected within 48-72 hours of illness onset (when influenza viral shedding is highest) is more likely to yield positive RIDT results.

Testing is not needed for all patients with signs and symptoms of influenza to make antiviral treatment decisions. Once influenza activity has been documented in the community or geographic area, a clinical diagnosis of influenza can be made for outpatients with signs and symptoms consistent with suspected influenza, especially during periods of peak influenza activity in the community.

CDC guidelines for influenza antiviral use during the 2013-14 season are the same as during prior seasons. For persons with suspected or confirmed influenza for whom antiviral treatment is indicated (see below), neuraminidase inhibitor antiviral drugs (oral oseltamivir or inhaled zanamivir) are recommended. Evidence from past influenza seasons and the 2009 H1N1 pandemic has consistently shown that treatment with antiviral medications reduces severe outcomes of influenza when initiated as soon as possible after illness onset. Clinical trials and observational data show that early antiviral treatment may (1) shorten the duration of fever and illness symptoms, (2) reduce the risk of complications from influenza (e.g., otitis media in young children, pneumonia, respiratory failure, and death), and (3) shorten the duration of hospitalization. For additional information, see: http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm and http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6001a1.htm.

DHSS Recommendations for Healthcare Providers:

- Encourage all patients 6 months of age and older who have not yet received an influenza vaccine this season to be vaccinated against influenza. There are several flu vaccine options for the 2013-2014 flu season (see http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6207a1.htm?s_cid=rr6207a1_w#Tab1), and all available vaccine formulations this season contain a pH1N1 component.

- Encourage all persons with ILI who are at high risk for influenza complications (see list below) to seek care promptly to determine if treatment with influenza antiviral medications is warranted.

- Consider sending respiratory specimens to the Missouri State Public Health Laboratory (MSPHL) for influenza testing by viral culture or RT-PCR to confirm results of an RIDT when:

  - ✓ A patient tests negative by RIDT when community influenza activity is high and laboratory confirmation of influenza is desired.
  - ✓ A patient tests positive by RIDT and the community prevalence of influenza is low, and a false-positive result is a consideration.
  - ✓ A patient has had recent close exposure to pigs, poultry, or other animals and novel influenza A virus infection is possible (e.g. influenza viruses circulate widely among swine and birds, including poultry, and also can infect other animals such as horses and dogs).

- **Before any specimen is sent to MSPHL for testing, DHSS staff must first be consulted by calling 800/392-0272 and asking for the Influenza Coordinator.** Collect nasopharyngeal, nasal, or throat swabs using a Dacron/flocked swab or equivalent and any commercially available viral transport media. Tracheal aspirate and bronchoalveolar lavage (BAL) specimens could be submitted as well. Fill out a requisition form at http://health.mo.gov/lab. After collection, specimens must be stored at 2-8 °C and shipped (preferably utilizing MSPHL Courier) to MSPHL on frozen refrigerant packs within three days OR stored at -70°C and sent on dry ice if held longer than 3 days.

- Antiviral treatment is recommended as early as possible for any patient with confirmed or suspected influenza who
  - is hospitalized;
  - has severe, complicated, or progressive illness; or
  - is at higher risk for influenza complications:
    - children aged younger than 2 years;
    - adults aged 65 years and older;
    - persons with chronic pulmonary (including asthma), cardiovascular (except hypertension alone), renal, hepatic, or hematological (including sickle cell) disease; metabolic disorders (including diabetes mellitus); or neurologic and neurodevelopment conditions (including disorders of the brain, spinal cord, peripheral nerve, and muscle such as cerebral palsy, epilepsy [seizure disorders], stroke, intellectual disability [mental retardation], moderate to severe developmental delay, muscular dystrophy, or spinal cord injury);
    - persons with immunosuppression, including that caused by medications or by HIV infection;
    - women who are pregnant or postpartum (within 2 weeks after delivery);
    - persons aged younger than 19 years who are receiving long-term aspirin therapy;
    - American Indians/Alaska Natives;
    - persons who are morbidly obese (i.e., body-mass index is equal to or greater than 40); and
    - residents of nursing homes and other chronic-care facilities.

- When indicated, antiviral treatment should be started as soon as possible after illness onset, ideally within 48 hours of symptom onset. However, antiviral treatment might still be beneficial in patients with severe, complicated, or progressive illness, and in hospitalized patients and in some outpatients when started after 48 hours of illness onset. Antiviral treatment can also be considered for suspected or confirmed influenza in previously healthy, symptomatic outpatients not at high risk on the basis of clinical judgment, especially if treatment can be initiated within 48 hours of illness onset.

- RIDTs have limited sensitivities and predictive values; negative results of RIDTs do not

exclude influenza virus infection in patients with signs and symptoms suggestive of influenza. Therefore, antiviral treatment should not be withheld from patients with suspected influenza, even if they test negative.

- History of influenza vaccination does not rule out influenza virus infection in an ill patient with clinical signs and symptoms compatible with influenza.

- Notify the local public health agency (LPHA) or DHSS of any suspected institutional influenza outbreaks. Reports to DHSS can be made by calling 800/392-0272 (24/7). Respiratory specimens should be collected from ill persons (whether positive or negative by RIDT) and sent to a public health laboratory for more accurate influenza testing.

Questions should be directed to the LPHA, or to DHSS's Bureau of Communicable Disease Control and Prevention at 573/751-6113.